

SEQUENCE LISTING

<110> Ingraham, Holly A.
Krylova, Irina

<120> Steroidogenic Factor-1 Protein Variants
and Methods of Making Same

<130> 66778-120

<150> US 60/395,371

<151> 2002-07-12

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<211> 283

<212> PRT

<213> Mus musculus

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Pro	Tyr	Ser	Tyr	Pro	Glu	Pro	Phe	Ser	Gly	Gly	Pro	Asn	Val	Pro	Glu
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Ala	Arg	Ile	Val	Gly	Cys	Leu	Gln	Glu	Pro	Ala	Lys	Ser	Arg	Ser	Asp
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Gln	Pro	Ala	Pro	Phe	Ser	Leu	Leu	Cys	Arg	Met	Ala	Asp	Gln	Thr	Phe
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Ile	Ser	Ile	Val	Asp	Trp	Ala	Arg	Arg	Cys	Met	Val	Phe	Lys	Glu	Leu
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Glu	Val	Ala	Asp	Gln	Met	Thr	Leu	Leu	Gln	Asn	Cys	Trp	Ser	Glu	Leu
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Ser	Ile	Leu	Leu	Val	Ser	Gly	Gln	Glu	Val	Glu	Leu	Ser	Thr	Val	Ala
145					150					155					160
Val	Gln	Ala	Gly	Gly	Leu	Leu	His	Ser	Leu	Val	Leu	Arg	Ala	Gln	Glu
			165						170					175	
Leu	Val	Leu	Gln	Leu	His	Ala	Leu	Gln	Leu	Asp	Arg	Gln	Glu	Phe	Val
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Cys	Leu	Lys	Phe	Leu	Ile	Leu	Phe	Ser	Leu	Asp	Val	Lys	Phe	Ile	Asn
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Leu Asp Tyr Thr Leu Cys His Tyr Pro His Cys Gly Asp Lys Phe Gln
225                230                235                240
Gln Leu Leu Cys Leu Val Glu Val Arg Ala Leu Ser Met Gln Ala Lys
                245                250                255
Glu Tyr Leu Tyr His Lys His Leu Gly Asn Glu Met Pro Arg Asn Asn
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Leu Leu Ile Glu Met Leu Gln Ala Lys Gln Thr
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<210> 2
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 <213> Homo sapiens

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Tyr Gly Tyr Pro Glu Pro Phe Ser Gly Gly Pro Asn Val Pro Glu Leu
          35          40          45
Ile Leu Gln Leu Leu Gln Leu Glu Pro Asp Glu Asp Gln Val Arg Ala
          50          55          60
Arg Ile Leu Gly Cys Leu Gln Glu Pro Thr Lys Ser Arg Pro Asp Gln
65          70          75          80
Pro Ala Ala Phe Gly Leu Leu Cys Arg Met Ala Asp Gln Thr Phe Ile
          85          90          95
Ser Ile Val Asp Trp Ala Arg Arg Cys Met Val Phe Lys Glu Leu Glu
          100         105         110
Val Ala Asp Gln Met Thr Leu Leu Gln Asn Cys Trp Ser Glu Leu Leu
          115         120         125
Val Phe Asp His Ile Tyr Arg Gln Val Gln His Gly Lys Glu Gly Ser
          130         135         140
Ile Leu Leu Val Thr Gly Gln Glu Val Glu Leu Thr Thr Val Ala Thr
145         150         155         160
Gln Ala Gly Ser Leu Leu His Ser Leu Val Leu Arg Ala Gln Glu Leu
          165         170         175
Val Leu Gln Leu Leu Ala Leu Gln Leu Asp Arg Gln Glu Phe Val Cys
          180         185         190
Leu Lys Phe Val Cys Leu Lys Phe Ile Ile Leu Phe Ser Leu Asp Leu
          195         200         205
Lys Phe Ile Asn Asn His Ile Leu Val Lys Asp Ala Gln Glu Lys Ala
          210         215         220
Asn Ala Ala Leu Leu Asp Tyr Thr Leu Cys His Tyr Pro His Cys Gly
225         230         235         240
Asp Lys Phe Gln Gln Leu Leu Leu Cys Leu Val Glu Val Arg Ala Leu
          245         250         255
Ser Met Gln Ala Lys Glu Tyr Leu Tyr His Lys His Leu Gly Asn Glu
          260         265         270
Met Pro Arg Asn Asn Leu Leu Ile Glu Met Leu Gln Ala Lys Gln Thr
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<210> 3
<211> 288
<212> PRT
<213> Mus musculus

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Lys Ser Glu Tyr Pro Asp Pro Tyr Ser Ser Ser Pro Glu Ser Met Met
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Gly Tyr Ser Tyr Met Asp Gly Tyr Gln Thr Asn Ser Pro Ala Ser Ile
35 40 45
Pro Leu Leu Ile Leu Glu Leu Leu Lys Cys Glu Pro Asp Glu Pro Gln
50 55 60
Val Gln Ala Lys Ile Met Ala Tyr Leu Gln Gln Glu Gln Ser Asn Arg
65 70 75 80
Asn Arg Gln Glu Lys Leu Ser Ala Phe Gly Leu Leu Cys Arg Met Ala
85 90 95
Asp Gln Thr Leu Phe Ser Ile Val Glu Trp Ala Arg Ser Ser Ile Phe
100 105 110
Phe Arg Glu Leu Lys Val Asp Asp Gln Met Lys Leu Leu Gln Asn Cys
115 120 125
Trp Ser Glu Leu Leu Ile Leu Asp His Ile Thr Arg Gln Val Ala His
130 135 140
Gly Lys Glu Gly Thr Ile Phe Leu Val Thr Gly Glu His Val Asp Tyr
145 150 155 160
Ser Thr Ile Ile Ser His Thr Glu Val Ala Arg Asn Asn Leu Leu Ser
165 170 175
Leu Ala Gln Glu Leu Val Val Arg Leu Arg Ser Leu Gln Glu Asp Gln
180 185 190
Arg Glu Glu Val Cys Leu Lys Phe Leu Val Leu Phe Ser Ser Asp Val
195 200 205
Phe Asn Leu Glu Asn Leu Gln Leu Val Glu Gly Val Gln Glu Gln Val
210 215 220
Asn Ala Ala Leu Leu Asp Tyr Thr Val Cys Asn Tyr Pro Gln Gln Thr
225 230 235 240
Glu Lys Phe Gly Gln Leu Leu Leu Arg Leu Pro Glu Ile Arg Ala Ile
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Ser Lys Gln Ala Glu Asp Tyr Leu Tyr Tyr Lys His Val Asn Gly Asp
260 265 270
Val Pro Tyr Met Asn Leu Leu Ile Glu Met Leu His Ala Lys Arg Ala
275 280 285

<210> 4
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<212> PRT
<213> Homo sapiens

<400> 4
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Tyr	Ser	Tyr	Met	Asp	Ser	Tyr	Gln	Thr	Ser	Ser	Pro	Ala	Ser	Ile	Pro
		35					40					45			
His	Leu	Ile	Leu	Glu	Leu	Leu	Lys	Cys	Glu	Pro	Asp	Glu	Pro	Gln	Val
	50					55					60				
Gln	Ala	Lys	Ile	Met	Ala	Tyr	Leu	Gln	Gln	Glu	Gln	Ala	Asn	Arg	Ser
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Lys	His	Glu	Lys	Leu	Ser	Thr	Phe	Gly	Ile	Met	Cys	Arg	Met	Ala	Asp
			85					90						95	
Gln	Thr	Leu	Phe	Ser	Ile	Val	Glu	Trp	Ala	Arg	Ser	Ser	Ile	Phe	Phe
			100					105					110		
Arg	Glu	Leu	Lys	Val	Asp	Asp	Gln	Met	Lys	Leu	Leu	Gln	Asn	Cys	Trp
		115					120					125			
Ser	Glu	Leu	Leu	Ile	Leu	Asp	His	Ile	Tyr	Arg	Gln	Val	Val	His	Gly
	130					135					140				
Lys	Glu	Gly	Ser	Ile	Phe	Leu	Val	Thr	Gly	Gln	Gln	Val	Asp	Tyr	Ser
145					150					155					160
Ile	Ile	Ala	Ser	Gln	Ala	Gly	Ala	Thr	Ile	Asn	Asn	Ile	Met	Ser	His
				165					170						175
Ala	Gln	Glu	Leu	Val	Lys	Leu	Arg	Ser	Leu	Gln	Glu	Asp	Gln	Arg	Glu
			180					185					190		
Phe	Val	Cys	Leu	Lys	Phe	Leu	Val	Leu	Phe	Ser	Leu	Asp	Val	Phe	Asn
		195					200					205			
Leu	Glu	Asn	Phe	Gln	Leu	Val	Glu	Gly	Val	Gln	Glu	Gln	Val	Asn	Ala
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Ala	Leu	Leu	Asp	Tyr	Thr	Met	Cys	Asn	Tyr	Pro	Gln	Gln	Thr	Glu	Lys
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Phe	Gly	Gln	Leu	Leu	Leu	Arg	Leu	Pro	Glu	Ile	Arg	Ala	Ile	Ser	Met
				245					250					255	
Gln	Ala	Glu	Glu	Tyr	Leu	Tyr	Tyr	Lys	His	Ile	Asn	Gly	Asp	Val	Pro
			260					265					270		
Tyr	Asn	Asn	Leu	Leu	Ile	Glu	Met	Leu	His	Ala	Lys	Arg	Ala		
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<211> 260

<212> PRT

<213> Homo sapiens

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Glu	Arg	Ile	Leu	Glu	Ala	Glu	Leu	Ala	Val	Glu	Pro	Lys	Thr	Glu	Thr
		35					40					45			
Tyr	Val	Glu	Ala	Asn	Met	Gly	Ile	Asn	Pro	Ser	Ser	Pro	Asn	Asp	Pro
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Val	Thr	Asn	Ile	Cys	Gln	Ala	Ala	Asp	Lys	Gln	Leu	Phe	Thr	Leu	Val
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Glu	Trp	Ala	Lys	Arg	Ile	Pro	His	Phe	Ser	Glu	Leu	Pro	Leu	Asp	Asp

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Gln	Val	Ile	Leu	Leu	Arg	Ala	Gly	Trp	Asn	Glu	Leu	Leu	Ile	Ala	Ser					
100							105							110						
Phe	Ser	His	Arg	Ser	Leu	Ala	Val	Lys	Asp	Gly	Ile	Leu	Leu	Ala	Thr					
115							120							125						
Gly	Leu	His	Val	His	Gly	Asn	Ser	Ala	His	Ser	Ala	Gly	Val	Gly	Ala					
130							135							140						
Ile	Phe	Asp	Arg	Val	Leu	Thr	Glu	Leu	Val	Ser	Lys	Met	Arg	Asp	Met					
145							150							155						
Gln	Met	Asp	Lys	Thr	Glu	Leu	Gly	Cys	Leu	Arg	Ala	Ile	Val	Leu	Arg					
165							170							175						
Asn	Pro	Asp	Ser	Lys	Gly	Leu	Ser	Asn	Pro	Ala	Glu	Val	Glu	Ala	Leu					
180							185							190						
Arg	Glu	Lys	Val	Tyr	Ala	Ser	Leu	Glu	Ala	Tyr	Cys	Lys	His	Lys	Tyr					
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Pro	Glu	Gln	Pro	Gly	Arg	Phe	Ala	Lys	Ile	Leu	Leu	Arg	Leu	Pro	Ala					
210							215							220						
Leu	Arg	Ser	Ile	Gly	Leu	Lys	Cys	Leu	Glu	His	Leu	Phe	Phe	Phe	Lys					
225							230							235						
Leu	Ile	Gly	Asp	Thr	Pro	Ile	Asp	Thr	Phe	Ile	Met	Glu	Met	Leu	Glu					
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<220>

<221> CDS

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1				5				10						15		

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 Gly Asp Lys Val Ser Gly Tyr His Tyr Gly Leu Leu Thr Cys Glu Ser
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tgc aag ggc ttc ttc aag cgc aca gtc cag aac aac aag cat tac acg 144
Cys Lys Gly Phe Phe Lys Arg Thr Val Gln Asn Asn Lys His Tyr Thr
35 40 45

tgc acc gag agt cag agc tgc aaa atc gac aag acg cag cgt aag cgc 192
Cys Thr Glu Ser Gln Ser Cys Lys Ile Asp Lys Thr Gln Arg Lys Arg
50 55 60

tgt ccc ttc tgc cgc ttc cag aag tgc ctg acg gtg ggc atg cgc ctg 240
Cys Pro Phe Cys Arg Phe Gln Lys Cys Leu Thr Val Gly Met Arg Leu

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gaa gct gtg cgt gct gat cga atg cgg ggt ggc cgg aac aag ttt ggg	288															
Glu Ala Val Arg Ala Asp Arg Met Arg Gly Gly Arg Asn Lys Phe Gly																
	85					90					95					
ccc atg tac aag aga gac cgg gcc ttg aag cag cag aag aaa gca cag	336															
Pro Met Tyr Lys Arg Asp Arg Ala Leu Lys Gln Gln Lys Lys Ala Gln																
	100					105					110					
att cgg gcc aat ggc ttc aag ctg gag acc gga cca ccg atg ggg gtg	384															
Ile Arg Ala Asn Gly Phe Lys Leu Glu Thr Gly Pro Pro Met Gly Val																
	115					120					125					
ccc ccg cca ccc cct ccc cca ccg gac tac atg tta ccc cct agc ctg	432															
Pro Pro Pro Pro Pro Pro Pro Asp Tyr Met Leu Pro Pro Ser Leu																
	130					135					140					
cac gca ccg gag ccc aag gcc ctg gtc tct ggc cca ccc agt ggg ccg	480															
His Ala Pro Glu Pro Lys Ala Leu Val Ser Gly Pro Pro Ser Gly Pro																
	145					150					155					
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Leu Gly Asp Phe Gly Ala Pro Ser Leu Pro Met Ala Val Pro Gly Pro																
	165					170					175					
cac gga cct ctg gct ggc tac ctc tat cct gcc ttc tct aac cgc acc	576															
His Gly Pro Leu Ala Gly Tyr Leu Tyr Pro Ala Phe Ser Asn Arg Thr																
	180					185					190					
atc aag tct gag tat cca gag ccc tat gcc agc ccc cca caa cag cca	624															
Ile Lys Ser Glu Tyr Pro Glu Pro Tyr Ala Ser Pro Pro Gln Gln Pro																
	195					200					205					
ggg cca ccc tac agc tat cca gag ccc ttc tca gga ggg ccc aat gta	672															
Gly Pro Pro Tyr Ser Tyr Pro Glu Pro Phe Ser Gly Gly Pro Asn Val																
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cca gag ctc ata ttg cag ctg ctg caa cta gag cca gag gag gac cag	720															
Pro Glu Leu Ile Leu Gln Leu Leu Gln Leu Glu Pro Glu Glu Asp Gln																
	225					230					235					
gtg cgc gct cgc atc gtg ggc tgt ctg cag gag cca gcc aaa agc cgc	768															
Val Arg Ala Arg Ile Val Gly Cys Leu Gln Glu Pro Ala Lys Ser Arg																
	245					250					255					
tct gac cag cca gcg ccc ttc agc ctc ctc tgc aga atg gcc gac cag	816															
Ser Asp Gln Pro Ala Pro Phe Ser Leu Leu Cys Arg Met Ala Asp Gln																
	260					265					270					
acc ttt atc tcc att gtc gac tgg gca cga agg tgc atg gtc ttt aag	864															
Thr Phe Ile Ser Ile Val Asp Trp Ala Arg Arg Cys Met Val Phe Lys																
	275					280					285					

gag ctg gag gtg gct gac cag atg aca ctg ctg cag aac tgt tgg agc	912
Glu Leu Glu Val Ala Asp Gln Met Thr Leu Leu Gln Asn Cys Trp Ser	
290 295 300	
gag ctg ctg gtg ttg gac cac atc tac cgc cag gtc cag tac ggc aag	960
Glu Leu Leu Val Leu Asp His Ile Tyr Arg Gln Val Gln Tyr Gly Lys	
305 310 315 320	
gaa gac agc atc ctg ctg gtt act gga cag gag gtg gag ctg agc aca	1008
Glu Asp Ser Ile Leu Leu Val Thr Gly Gln Glu Val Glu Leu Ser Thr	
325 330 335	
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Val Ala Val Gln Ala Gly Ser Leu Leu His Ser Leu Val Leu Arg Ala	
340 345 350	
caa gag tta gtg ctc cag ttg cat gca ctg cag ctg gac cgc cag gag	1104
Gln Glu Leu Val Leu Gln Leu His Ala Leu Gln Leu Asp Arg Gln Glu	
355 360 365	
ttc gtc tgt ctc aag ttc ctc atc ctc ttc agc ctc gat gtg aaa ttc	1152
Phe Val Cys Leu Lys Phe Leu Ile Leu Phe Ser Leu Asp Val Lys Phe	
370 375 380	
ctg aac aac cac agc ctc gta aag gac gcc cag gaa aag gcc aac gct	1200
Leu Asn Asn His Ser Leu Val Lys Asp Ala Gln Glu Lys Ala Asn Ala	
385 390 395 400	
gcc ctg ttg gat tac acc ttg tgt cac tac cca cac tgc ggg gac aaa	1248
Ala Leu Leu Asp Tyr Thr Leu Cys His Tyr Pro His Cys Gly Asp Lys	
405 410 415	
ttc cag cag ttg cta ttg tgc ctg gtg gag gtg cgg gcc ctg agc atg	1296
Phe Gln Gln Leu Leu Leu Cys Leu Val Glu Val Arg Ala Leu Ser Met	
420 425 430	
cag gcc aag gag tac ctg tac cac aag cat ttg ggc aac gag atg ccc	1344
Gln Ala Lys Glu Tyr Leu Tyr His Lys His Leu Gly Asn Glu Met Pro	
435 440 445	
cgc aac aac ctt ctc att gag atg ctg cag gcc aag cag act tga	1389
Arg Asn Asn Leu Leu Ile Glu Met Leu Gln Ala Lys Gln Thr *	
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<210> 7

<211> 462

<212> PRT

<213> Mus musculus

<400> 7

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Cys	Lys	Gly	Phe	Phe	Lys	Arg	Thr	Val	Gln	Asn	Asn	Lys	His	Tyr	Thr
Cys	Thr	Glu	Ser	Gln	Ser	Cys	Lys	Ile	Asp	Lys	Thr	Gln	Arg	Lys	Arg
Cys 65	Pro	Phe	Cys	Arg	Phe	Gln	Lys	Cys	Leu	Thr	Val	Gly	Met	Arg	Leu
Glu	Ala	Val	Arg	Ala	Asp	Arg	Met	Arg	Gly	Gly	Arg	Asn	Lys	Phe	Gly
Pro	Met	Tyr	Lys	Arg	Asp	Arg	Ala	Leu	Lys	Gln	Gln	Lys	Lys	Ala	Gln
Ile	Arg	Ala	Asn	Gly	Phe	Lys	Leu	Glu	Thr	Gly	Pro	Pro	Met	Gly	Val
Pro	Pro	Pro	Pro	Pro	Pro	Pro	Pro	Asp	Tyr	Met	Leu	Pro	Pro	Ser	Leu
His 145	Ala	Pro	Glu	Pro	Lys	Ala	Leu	Val	Ser	Gly	Pro	Pro	Ser	Gly	Pro
Leu	Gly	Asp	Phe	Gly	Ala	Pro	Ser	Leu	Pro	Met	Ala	Val	Pro	Gly	Pro
His	Gly	Pro	Leu	Ala	Gly	Tyr	Leu	Tyr	Pro	Ala	Phe	Ser	Asn	Arg	Thr
Ile	Lys	Ser	Glu	Tyr	Pro	Glu	Pro	Tyr	Ala	Ser	Pro	Pro	Gln	Gln	Pro
Gly	Pro	Pro	Tyr	Ser	Tyr	Pro	Glu	Pro	Phe	Ser	Gly	Gly	Pro	Asn	Val
Pro 225	Glu	Leu	Ile	Leu	Gln	Leu	Leu	Gln	Leu	Glu	Pro	Glu	Glu	Asp	Gln
Val	Arg	Ala	Arg	Ile	Val	Gly	Cys	Leu	Gln	Glu	Pro	Ala	Lys	Ser	Arg
Ser	Asp	Gln	Pro	Ala	Pro	Phe	Ser	Leu	Leu	Cys	Arg	Met	Ala	Asp	Gln
Thr	Phe	Ile	Ser	Ile	Val	Asp	Trp	Ala	Arg	Arg	Cys	Met	Val	Phe	Lys
Glu	Leu	Glu	Val	Ala	Asp	Gln	Met	Thr	Leu	Leu	Gln	Asn	Cys	Trp	Ser
Glu 305	Leu	Leu	Val	Leu	Asp	His	Ile	Tyr	Arg	Gln	Val	Gln	Tyr	Gly	Lys
Glu	Asp	Ser	Ile	Leu	Leu	Val	Thr	Gly	Gln	Glu	Val	Glu	Leu	Ser	Thr
Val	Ala	Val	Gln	Ala	Gly	Ser	Leu	Leu	His	Ser	Leu	Val	Leu	Arg	Ala
Gln	Glu	Leu	Val	Leu	Gln	Leu	His	Ala	Leu	Gln	Leu	Asp	Arg	Gln	Glu
Phe	Val	Cys	Leu	Lys	Phe	Leu	Ile	Leu	Phe	Ser	Leu	Asp	Val	Lys	Phe
Leu 385	Asn	Asn	His	Ser	Leu	Val	Lys	Asp	Ala	Gln	Glu	Lys	Ala	Asn	Ala
Ala	Leu	Leu	Asp	Tyr	Thr	Leu	Cys	His	Tyr	Pro	His	Cys	Gly	Asp	Lys
Phe	Gln	Gln	Leu	Leu	Leu	Cys	Leu	Val	Glu	Val	Arg	Ala	Leu	Ser	Met

	420		425		430										
Gln	Ala	Lys	Glu	Tyr	Leu	Tyr	His	Lys	His	Leu	Gly	Asn	Glu	Met	Pro
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<210> 8
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 <213> Homo sapiens

<220>
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 Cys Pro Val Cys Gly Asp Lys Val Ser Gly Tyr His Tyr Gly Leu Leu
 15 20 25

acg tgt gag agc tgc aag ggc ttc ttc aag cgc acg gtg cag aac aac 147
 Thr Cys Glu Ser Cys Lys Gly Phe Phe Lys Arg Thr Val Gln Asn Asn
 30 35 40

aag cac tac acg tgc acc gag agc cag agc tgc aag atc gac aag acg 195
 Lys His Tyr Thr Cys Thr Glu Ser Gln Ser Cys Lys Ile Asp Lys Thr
 45 50 55 60

cag cgc aag cgc tgt ccc ttc tgc cgc ttc cag aaa tgc ctg acg gtg 243
 Gln Arg Lys Arg Cys Pro Phe Cys Arg Phe Gln Lys Cys Leu Thr Val
 65 70 75

ggg atg cgc ctg gaa gcc gtg cgc gct gac cgt atg agg ggt ggc cgg 291
 Gly Met Arg Leu Glu Ala Val Arg Ala Asp Arg Met Arg Gly Gly Arg
 80 85 90

aac aag ttt ggg ccg atg tac aag cgg gac cgg gcc ctg aaa cag cag 339
 Asn Lys Phe Gly Pro Met Tyr Lys Arg Asp Arg Ala Leu Lys Gln Gln
 95 100 105

aag aag gca cag att cgg gcc aat ggc ttc aag ctg gag aca ggg ccc 387
 Lys Lys Ala Gln Ile Arg Ala Asn Gly Phe Lys Leu Glu Thr Gly Pro
 110 115 120

ccg atg ggg gtg ccc ccg ccg ccc cct ccc gca ccg gac tac gtg ctg 435
 Pro Met Gly Val Pro Pro Pro Pro Pro Pro Ala Pro Asp Tyr Val Leu
 125 130 135 140

cct ccc agc ctg cat ggg cct gag ccc aag ggc ctg gcc gcc ggt cca	483
Pro Pro Ser Leu His Gly Pro Glu Pro Lys Gly Leu Ala Ala Gly Pro	
145 150 155	
cct gct ggg cca ctg ggc gac ttt ggg gcc cca gca ctg ccc atg gcc	531
Pro Ala Gly Pro Leu Gly Asp Phe Gly Ala Pro Ala Leu Pro Met Ala	
160 165 170	
gtg ccc ggt gcc cac ggg cca ctg gct ggc tac ctc tac cct gcc ttt	579
Val Pro Gly Ala His Gly Pro Leu Ala Gly Tyr Leu Tyr Pro Ala Phe	
175 180 185	
cct ggc cgt gcc atc aag tct gag tac ccg gag cct tat gcc agc ccc	627
Pro Gly Arg Ala Ile Lys Ser Glu Tyr Pro Glu Pro Tyr Ala Ser Pro	
190 195 200	
cca cag cct ggg ctg ccg tac ggc tac cca gag ccc ttc tct gga ggc	675
Pro Gln Pro Gly Leu Pro Tyr Gly Tyr Pro Glu Pro Phe Ser Gly Gly	
205 210 215 220	
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Glu Asp Gln Val Arg Ala Arg Ile Leu Gly Cys Leu Gln Glu Pro Thr	
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Lys Ser Arg Pro Asp Gln Pro Ala Ala Phe Gly Leu Leu Cys Arg Met	
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Val Phe Lys Glu Leu Glu Val Ala Asp Gln Met Thr Leu Leu Gln Asn	
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Cys Trp Ser Glu Leu Leu Val Phe Asp His Ile Tyr Arg Gln Val Gln	
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His Gly Lys Glu Gly Ser Ile Leu Leu Val Thr Gly Gln Glu Val Glu	
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Leu Thr Thr Val Ala Thr Gln Ala Gly Ser Leu Leu His Ser Leu Val	
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Leu Arg Ala Gln Glu Leu Val Leu Gln Leu Leu Ala Leu Gln Leu Asp
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Gln	Gln	Leu	Leu	Leu	Cys	Leu	Val	Glu	Val	Arg	Ala	Leu	Ser	Met	Gln		
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Thr Gly Asp Phe Gln Glu Phe Leu Lys His Gly Leu Thr Ala Ile Ala
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Leu Arg Glu Lys Arg Ala Gly Leu Pro Asp Arg His Arg Arg Pro Ile
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Pro Ala Arg Ser Arg Leu Val Met Leu Pro Lys Val Glu Thr Glu Ala
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cca gga ctg gtc cga tcg cat ggg gaa cag ggg cag atg cca gaa aac 416
Pro Gly Leu Val Arg Ser His Gly Glu Gln Gly Gln Met Pro Glu Asn
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atg caa gtg tct caa ttt aaa atg gtg aat tac tcc tat gat gaa gat 464
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Tyr Gly Leu Leu Thr Cys Glu Ser Cys Lys Gly Phe Phe Lys Arg Thr
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Val Gln Asn Gln Lys Arg Tyr Thr Cys Ile Glu Asn Gln Asn Cys Gln
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Val	Ala	Leu	Pro	Pro	Thr	Asp	Tyr	Asp	Arg	Ser	Pro	Phe	Val	Thr	Ser		
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aca gaa gtc gcg ttc aac aac ctc ctg agt ctc gca cag gag ctg gtg			1520
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Val Arg Leu Arg Ser Leu Gln Phe Asp Gln Arg Glu Phe Val Cys Leu			
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Lys Phe Leu Val Leu Phe Ser Ser Asp Val Lys Asn Leu Glu Asn Leu			
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5 10 15	
ctt aca cct att gtg tct caa ttt aaa atg gtg aat tac tcc tat gat	154
Leu Thr Pro Ile Val Ser Gln Phe Lys Met Val Asn Tyr Ser Tyr Asp	
20 25 30	
gaa gat ctg gaa gag ctt tgt ccc gtg tgt gga gat aaa gtg tct ggg	202
Glu Asp Leu Glu Glu Leu Cys Pro Val Cys Gly Asp Lys Val Ser Gly	
35 40 45	
tac cat tat ggg ctc ctc acc tgt gaa agc tgc aag gga ttt ttt aag	250
Tyr His Tyr Gly Leu Leu Thr Cys Glu Ser Cys Lys Gly Phe Phe Lys	
50 55 60 65	
cga aca gtc caa aat aat aaa agg tac aca tgt ata gaa aac cag aac	298
Arg Thr Val Gln Asn Asn Lys Arg Tyr Thr Cys Ile Glu Asn Gln Asn	
70 75 80	
tgc caa att gac aaa aca cag aga aag cgt tgt cct tac tgt cgt ttt	346
Cys Gln Ile Asp Lys Thr Gln Arg Lys Arg Cys Pro Tyr Cys Arg Phe	
85 90 95	
caa aaa tgt cta agt gtt gga atg aag cta gaa gct gta agg gcc gac	394
Gln Lys Cys Leu Ser Val Gly Met Lys Leu Glu Ala Val Arg Ala Asp	
100 105 110	
cga atg cgt gga gga agg aat aag ttt ggg cca atg tac aag aga gac	442
Arg Met Arg Gly Gly Arg Asn Lys Phe Gly Pro Met Tyr Lys Arg Asp	
115 120 125	
agg gcc ctg aag caa cag aaa aaa gcc ctc atc cga gcc aat gga ctt	490
Arg Ala Leu Lys Gln Gln Lys Lys Ala Leu Ile Arg Ala Asn Gly Leu	
130 135 140 145	
aag cta gaa gcc atg tct cag gtg atc caa gct atg ccc tct gac ctg	538
Lys Leu Glu Ala Met Ser Gln Val Ile Gln Ala Met Pro Ser Asp Leu	
150 155 160	
acc att tcc tct gca att caa aac atc cac tct gcc tcc aaa ggc cta	586
Thr Ile Ser Ser Ala Ile Gln Asn Ile His Ser Ala Ser Lys Gly Leu	
165 170 175	
cct ctg aac cat gct gcc ttg cct cct aca gac tat gac aga agt ccc	634
Pro Leu Asn His Ala Ala Leu Pro Pro Thr Asp Tyr Asp Arg Ser Pro	
180 185 190	
ttt gta aca tcc ccc att agc atg aca atg ccc cct cac ggc agc ctg	682

Phe	Val	Thr	Ser	Pro	Ile	Ser	Met	Thr	Met	Pro	Pro	His	Gly	Ser	Leu	
195						200				205						
caa	ggt	tac	caa	aca	tat	ggc	cac	ttt	cct	agc	cgg	gcc	atc	aag	tct	730
Gln	Gly	Tyr	Gln	Thr	Tyr	Gly	His	Phe	Pro	Ser	Arg	Ala	Ile	Lys	Ser	
210					215				220					225		
gag	tac	cca	gac	ccc	tat	acc	agc	tca	ccc	gag	tcc	ata	atg	ggc	tat	778
Glu	Tyr	Pro	Asp	Pro	Tyr	Thr	Ser	Ser	Pro	Glu	Ser	Ile	Met	Gly	Tyr	
				230					235					240		
tca	tat	atg	gat	agt	tac	cag	acg	agc	tct	cca	gca	agc	atc	cca	cat	826
Ser	Tyr	Met	Asp	Ser	Tyr	Gln	Thr	Ser	Ser	Pro	Ala	Ser	Ile	Pro	His	
				245				250					255			
ctg	ata	ctg	gaa	ctt	ttg	aag	tgt	gag	cca	gat	gag	cct	caa	gtc	cag	874
Leu	Ile	Leu	Glu	Leu	Leu	Lys	Cys	Glu	Pro	Asp	Glu	Pro	Gln	Val	Gln	
	260					265						270				
gct	aaa	atc	atg	gcc	tat	ttg	cag	caa	gag	cag	gct	aac	cga	agc	aag	922
Ala	Lys	Ile	Met	Ala	Tyr	Leu	Gln	Gln	Glu	Gln	Ala	Asn	Arg	Ser	Lys	
	275					280					285					
cac	gaa	aag	ctg	agc	acc	ttt	ggg	ctt	atg	tgc	aaa	atg	gca	gat	caa	970
His	Glu	Lys	Leu	Ser	Thr	Phe	Gly	Leu	Met	Cys	Lys	Met	Ala	Asp	Gln	
290					295					300					305	
act	ctc	ttc	tcc	att	gtc	gag	tgg	gcc	agg	agt	agt	atc	ttc	ttc	aga	1018
Thr	Leu	Phe	Ser	Ile	Val	Glu	Trp	Ala	Arg	Ser	Ser	Ile	Phe	Phe	Arg	
				310					315					320		
gaa	ctt	aag	gtt	gat	gac	caa	atg	aag	ctg	ctt	cag	aac	tgc	tgg	agt	1066
Glu	Leu	Lys	Val	Asp	Asp	Gln	Met	Lys	Leu	Leu	Gln	Asn	Cys	Trp	Ser	
			325					330					335			
gag	ctc	tta	atc	ctc	gac	cac	att	tac	cga	caa	gtg	gta	cat	gga	aag	1114
Glu	Leu	Leu	Ile	Leu	Asp	His	Ile	Tyr	Arg	Gln	Val	Val	His	Gly	Lys	
		340					345					350				
gaa	gga	tcc	atc	ttc	ctg	ggt	act	ggg	caa	caa	gtg	gac	tat	tcc	ata	1162
Glu	Gly	Ser	Ile	Phe	Leu	Val	Thr	Gly	Gln	Gln	Val	Asp	Tyr	Ser	Ile	
	355					360					365					
ata	gca	tca	caa	gcc	gga	gcc	acc	ctc	aac	aac	ctc	atg	agt	cat	gca	1210
Ile	Ala	Ser	Gln	Ala	Gly	Ala	Thr	Leu	Asn	Asn	Leu	Met	Ser	His	Ala	
370					375					380					385	
cag	gag	tta	gtg	gca	aaa	ctt	cgt	tct	ctc	cag	ttt	gat	caa	cga	gag	1258
Gln	Glu	Leu	Val	Ala	Lys	Leu	Arg	Ser	Leu	Gln	Phe	Asp	Gln	Arg	Glu	
			390						395					400		
ttc	gta	tgt	ctg	aaa	ttc	ttg	gtg	ctc	ttt	agt	tta	gat	gtc	aaa	aac	1306
Phe	Val	Cys	Leu	Lys	Phe	Leu	Val	Leu	Phe	Ser	Leu	Asp	Val	Lys	Asn	

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405              410              415
ctt gaa aac ttc cag ctg gta gaa ggt gtc cag gaa caa gtc aat gcc 1354
Leu Glu Asn Phe Gln Leu Val Glu Gly Val Gln Glu Gln Val Asn Ala
      420              425              430

gcc ctg ctg gac tac aca atg tgt aac tac ccg cag cag aca gag aaa 1402
Ala Leu Leu Asp Tyr Thr Met Cys Asn Tyr Pro Gln Gln Thr Glu Lys
      435              440              445

ttt gga cag cta ctt ctt cga cta ccc gaa atc cgg gcc atc agt atg 1450
Phe Gly Gln Leu Leu Arg Leu Pro Glu Ile Arg Ala Ile Ser Met
      450              455              460              465

cag gct gaa gaa tac ctc tac tac aag cac ctg aac ggg gat gtg ccc 1498
Gln Ala Glu Glu Tyr Leu Tyr Tyr Lys His Leu Asn Gly Asp Val Pro
      470              475              480

tat aat aac ctt ctc att gaa atg ttg cat gcc aaa aga gca taa 1543
Tyr Asn Asn Leu Leu Ile Glu Met Leu His Ala Lys Arg Ala *
      485              490              495

gttacaaccc ctaggagctc tgctttcaaa acaaaaagag attgggggag tggggaggagg 1603
gaagaagaac aggaagaaaa aaagtactct gaactgctcc aagcaacgct aattaaaaaac 1663
ttgctttaaa gatattgaat ttaaaaaggc ataataatca aataacttaat agcaaataaa 1723
tgatgtatca gggtatattgt attgcaaact gtgaatcaaa ggcttcacag cccagagga 1783
ttccatataa aagacattgt aaggagtgga ttgaactcac agatggatac caacacggtc 1843
agaagaaaaa cggacagaac ggttcttgta tattaaactg atctccacta tgaagaaatt 1903
taggaactaa tcttgtaaat taggcttata cagcggggga tttgagctta caggattcct 1963
ccatggtaaa gctgaactga aacaattctc aagaatgcat cagctgtacc tacaatagcc 2023
cctccctctt cctttgaagg cccgagcacc tctgcctgtt ggtcaccgaa tctgtactaa 2083
ggacctgtgt tcagccacac cagtggtagc tccaccaaata catgaacagc ctaatttgag 2143
tgtctgtgtc ttagacctgc aaacagctaa taggaaattc tattaatatg ttagcttgcc 2203
attttaaata tgttctgagg gttgttttgt ctcgtgttca tgatgttaag aaaatgcagg 2263
cagtatccct catcttatgt aagtgtgaat taatattaag ggaaatgact acaaactttc 2323
aaagcaaatg ctccatagct aaagcaactt agaccttatt tctgctactg ttgctgaaat 2383
gtggctttgg cattgttgga tttcataaaa aatttctggc aggaagtctt gttagtatac 2443
atcagctctt ttcacatccc aagttttagt ttcatttaa 2482

<210> 13
<211> 495
<212> PRT
<213> Homo sapiens

<400> 13
Met Ser Ser Asn Ser Asp Thr Gly Asp Leu Gln Glu Ser Leu Lys His
  1              5              10              15
Gly Leu Thr Pro Ile Val Ser Gln Phe Lys Met Val Asn Tyr Ser Tyr
      20              25              30
Asp Glu Asp Leu Glu Glu Leu Cys Pro Val Cys Gly Asp Lys Val Ser
      35              40              45
Gly Tyr His Tyr Gly Leu Leu Thr Cys Glu Ser Cys Lys Gly Phe Phe
      50              55              60
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Lys	Arg	Thr	Val	Gln	Asn	Asn	Lys	Arg	Tyr	Thr	Cys	Ile	Glu	Asn	Gln	65	70	75	80
Asn	Cys	Gln	Ile	Asp	Lys	Thr	Gln	Arg	Lys	Arg	Cys	Pro	Tyr	Cys	Arg	85	90	95	
Phe	Gln	Lys	Cys	Leu	Ser	Val	Gly	Met	Lys	Leu	Glu	Ala	Val	Arg	Ala	100	105	110	
Asp	Arg	Met	Arg	Gly	Gly	Arg	Asn	Lys	Phe	Gly	Pro	Met	Tyr	Lys	Arg	115	120	125	
Asp	Arg	Ala	Leu	Lys	Gln	Gln	Lys	Lys	Ala	Leu	Ile	Arg	Ala	Asn	Gly	130	135	140	
Leu	Lys	Leu	Glu	Ala	Met	Ser	Gln	Val	Ile	Gln	Ala	Met	Pro	Ser	Asp	145	150	155	160
Leu	Thr	Ile	Ser	Ser	Ala	Ile	Gln	Asn	Ile	His	Ser	Ala	Ser	Lys	Gly	165	170	175	
Leu	Pro	Leu	Asn	His	Ala	Ala	Leu	Pro	Pro	Thr	Asp	Tyr	Asp	Arg	Ser	180	185	190	
Pro	Phe	Val	Thr	Ser	Pro	Ile	Ser	Met	Thr	Met	Pro	Pro	His	Gly	Ser	195	200	205	
Leu	Gln	Gly	Tyr	Gln	Thr	Tyr	Gly	His	Phe	Pro	Ser	Arg	Ala	Ile	Lys	210	215	220	
Ser	Glu	Tyr	Pro	Asp	Pro	Tyr	Thr	Ser	Ser	Pro	Glu	Ser	Ile	Met	Gly	225	230	235	240
Tyr	Ser	Tyr	Met	Asp	Ser	Tyr	Gln	Thr	Ser	Ser	Pro	Ala	Ser	Ile	Pro	245	250	255	
His	Leu	Ile	Leu	Glu	Leu	Leu	Lys	Cys	Glu	Pro	Asp	Glu	Pro	Gln	Val	260	265	270	
Gln	Ala	Lys	Ile	Met	Ala	Tyr	Leu	Gln	Gln	Glu	Gln	Ala	Asn	Arg	Ser	275	280	285	
Lys	His	Glu	Lys	Leu	Ser	Thr	Phe	Gly	Leu	Met	Cys	Lys	Met	Ala	Asp	290	295	300	
Gln	Thr	Leu	Phe	Ser	Ile	Val	Glu	Trp	Ala	Arg	Ser	Ser	Ile	Phe	Phe	305	310	315	320
Arg	Glu	Leu	Lys	Val	Asp	Asp	Gln	Met	Lys	Leu	Leu	Gln	Asn	Cys	Trp	325	330	335	
Ser	Glu	Leu	Leu	Ile	Leu	Asp	His	Ile	Tyr	Arg	Gln	Val	Val	His	Gly	340	345	350	
Lys	Glu	Gly	Ser	Ile	Phe	Leu	Val	Thr	Gly	Gln	Gln	Val	Asp	Tyr	Ser	355	360	365	
Ile	Ile	Ala	Ser	Gln	Ala	Gly	Ala	Thr	Leu	Asn	Asn	Leu	Met	Ser	His	370	375	380	
Ala	Gln	Glu	Leu	Val	Ala	Lys	Leu	Arg	Ser	Leu	Gln	Phe	Asp	Gln	Arg	385	390	395	400
Glu	Phe	Val	Cys	Leu	Lys	Phe	Leu	Val	Leu	Phe	Ser	Leu	Asp	Val	Lys	405	410	415	
Asn	Leu	Glu	Asn	Phe	Gln	Leu	Val	Glu	Gly	Val	Gln	Glu	Gln	Val	Asn	420	425	430	
Ala	Ala	Leu	Leu	Asp	Tyr	Thr	Met	Cys	Asn	Tyr	Pro	Gln	Gln	Thr	Glu	435	440	445	
Lys	Phe	Gly	Gln	Leu	Leu	Leu	Arg	Leu	Pro	Glu	Ile	Arg	Ala	Ile	Ser	450	455	460	
Met	Gln	Ala	Glu	Glu	Tyr	Leu	Tyr	Tyr	Lys	His	Leu	Asn	Gly	Asp	Val	465	470	475	480
Pro	Tyr	Asn	Asn	Leu	Leu	Ile	Glu	Met	Leu	His	Ala	Lys	Arg	Ala					

485

490

495

<210> 14
<211> 735
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic variant

<221> CDS
<222> (1)...(735)

<400> 14
tca gga ggg ccc aat gta cca gag ctc ata ttg cag ctg ctg caa cta 48
Ser Gly Gly Pro Asn Val Pro Glu Leu Ile Leu Gln Leu Leu Gln Leu
1 5 10 15

gag cca gag gag gac cag gtg cgc gct cgc atc gtg ggc tgt ctg cag 96
Glu Pro Glu Glu Asp Gln Val Arg Ala Arg Ile Val Gly Cys Leu Gln
20 25 30

gag cca gcc aaa agc cgc tct gac cag cca gcg ccc ttc agc ctc ctc 144
Glu Pro Ala Lys Ser Arg Ser Asp Gln Pro Ala Pro Phe Ser Leu Leu
35 40 45

tcg cga atg gcc gac cag acc ttt atc tcc att gtc gac tgg gca cga 192
Ser Arg Met Ala Asp Gln Thr Phe Ile Ser Ile Val Asp Trp Ala Arg
50 55 60

agg tgc atg gtc ttt aag gag ctg gag gtg gct gac cag atg aca ctg 240
Arg Cys Met Val Phe Lys Glu Leu Glu Val Ala Asp Gln Met Thr Leu
65 70 75 80

ctg caa aac tct tgg agc gag ctg ctg gtg ttg gac cac atc tac cgc 288
Leu Gln Asn Ser Trp Ser Glu Leu Leu Val Leu Asp His Ile Tyr Arg
85 90 95

cag gtc cag tac ggc aag gaa gac agc atc ctg ctg gtt act gga cag 336
Gln Val Gln Tyr Gly Lys Glu Asp Ser Ile Leu Leu Val Thr Gly Gln
100 105 110

gag gtg gag ctg agc aca gtg gct gtg cag gct ggc tcc ctg ctg cac 384
Glu Val Glu Leu Ser Thr Val Ala Val Gln Ala Gly Ser Leu Leu His
115 120 125

agc ctg gtg ctg cgg gcc caa gag tta gtg ctc cag ttg cat gca ctg 432
Ser Leu Val Leu Arg Ala Gln Glu Leu Val Leu Gln Leu His Ala Leu
130 135 140

cag ctg gac cgc cag gag ttc gtc tgt ctc aag ttc ctc atc ctc ttc 480
Gln Leu Asp Arg Gln Glu Phe Val Cys Leu Lys Phe Leu Ile Leu Phe

145	150	155	160	
agc ctc gat gtg aaa ttc ctg aac aac cac agc ctc gta aag gac gcc				528
Ser Leu Asp Val Lys Phe Leu Asn Asn His Ser Leu Val Lys Asp Ala				
	165	170	175	
cag gaa aag gcc aac gct gcc ctg ttg gat tac acc ttg tgt cac tac				576
Gln Glu Lys Ala Asn Ala Ala Leu Leu Asp Tyr Thr Leu Cys His Tyr				
	180	185	190	
cca cac tgc ggg gac aaa ttc cag cag ttg cta ttg tcg ctg gtg gag				624
Pro His Cys Gly Asp Lys Phe Gln Gln Leu Leu Ser Leu Val Glu				
	195	200	205	
gtg cgg gcc ctg agc atg cag gcc aag gag tac ctg tac cac aag cat				672
Val Arg Ala Leu Ser Met Gln Ala Lys Glu Tyr Leu Tyr His Lys His				
	210	215	220	
ttg ggc aac gag atg ccc cgc aac aac ctt ctc att gag atg ctg cag				720
Leu Gly Asn Glu Met Pro Arg Asn Asn Leu Leu Ile Glu Met Leu Gln				
	225	230	235	240
gcc aag cag act tga				735
Ala Lys Gln Thr *				

<210> 15

<211> 244

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic variant

<400> 15

Ser Gly Gly Pro Asn Val Pro Glu Leu Ile Leu Gln Leu Leu Gln Leu				
1 5 10 15				
Glu Pro Glu Glu Asp Gln Val Arg Ala Arg Ile Val Gly Cys Leu Gln				
20 25 30				
Glu Pro Ala Lys Ser Arg Ser Asp Gln Pro Ala Pro Phe Ser Leu Leu				
35 40 45				
Ser Arg Met Ala Asp Gln Thr Phe Ile Ser Ile Val Asp Trp Ala Arg				
50 55 60				
Arg Cys Met Val Phe Lys Glu Leu Glu Val Ala Asp Gln Met Thr Leu				
65 70 75 80				
Leu Gln Asn Ser Trp Ser Glu Leu Leu Val Leu Asp His Ile Tyr Arg				
85 90 95				
Gln Val Gln Tyr Gly Lys Glu Asp Ser Ile Leu Leu Val Thr Gly Gln				
100 105 110				
Glu Val Glu Leu Ser Thr Val Ala Val Gln Ala Gly Ser Leu Leu His				
115 120 125				
Ser Leu Val Leu Arg Ala Gln Glu Leu Val Leu Gln Leu His Ala Leu				

130					135					140					
Gln	Leu	Asp	Arg	Gln	Glu	Phe	Val	Cys	Leu	Lys	Phe	Leu	Ile	Leu	Phe
145					150					155					160
Ser	Leu	Asp	Val	Lys	Phe	Leu	Asn	Asn	His	Ser	Leu	Val	Lys	Asp	Ala
				165						170					175
Gln	Glu	Lys	Ala	Asn	Ala	Ala	Leu	Leu	Asp	Tyr	Thr	Leu	Cys	His	Tyr
			180						185				190		
Pro	His	Cys	Gly	Asp	Lys	Phe	Gln	Gln	Leu	Leu	Leu	Ser	Leu	Val	Glu
		195					200					205			
Val	Arg	Ala	Leu	Ser	Met	Gln	Ala	Lys	Glu	Tyr	Leu	Tyr	His	Lys	His
	210					215					220				
Leu	Gly	Asn	Glu	Met	Pro	Arg	Asn	Asn	Leu	Leu	Ile	Glu	Met	Leu	Gln
225					230					235					240
Ala	Lys	Gln	Thr												

<210> 16

<211> 735

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic variant

<221> CDS

<222> (1)...(735)

<400> 16

tca	gga	ggg	ccc	aat	gta	cca	gag	ctc	ata	ttg	cag	ctg	ctg	caa	cta	48
Ser	Gly	Gly	Pro	Asn	Val	Pro	Glu	Leu	Ile	Leu	Gln	Leu	Leu	Gln	Leu	
1				5					10					15		

gag	cca	gag	gag	gac	cag	gtg	cgc	gct	cgc	atc	gtg	ggc	tgt	ctg	cag	96
Glu	Pro	Glu	Glu	Asp	Gln	Val	Arg	Ala	Arg	Ile	Val	Gly	Cys	Leu	Gln	
			20					25					30			

gag	cca	gcc	aaa	agc	cgc	tct	gac	cag	cca	gcg	ccc	ttc	agc	ctc	ctc	144
Glu	Pro	Ala	Lys	Ser	Arg	Ser	Asp	Gln	Pro	Ala	Pro	Phe	Ser	Leu	Leu	
		35					40					45				

tgc	aga	atg	gcc	gac	cag	acc	ttt	atc	tcc	att	gtc	gac	tgg	gca	cga	192
Cys	Arg	Met	Ala	Asp	Gln	Thr	Phe	Ile	Ser	Ile	Val	Asp	Trp	Ala	Arg	
	50					55					60					

agg	tgc	atg	gtc	ttt	aag	gag	ctg	gag	gtg	gct	gac	cag	atg	aca	ctg	240
Arg	Cys	Met	Val	Phe	Lys	Glu	Leu	Glu	Val	Ala	Asp	Gln	Met	Thr	Leu	
	65				70				75					80		

ctg	caa	aac	tct	tgg	agc	gag	ctg	ctg	gtg	ttg	gac	cac	atc	tac	cgc	288
Leu	Gln	Asn	Ser	Trp	Ser	Glu	Leu	Leu	Val	Leu	Asp	His	Ile	Tyr	Arg	
			85						90					95		

cag gtc cag tac ggc aag gaa gac agc atc ctg ctg gtt act gga cag	336
Gln Val Gln Tyr Gly Lys Glu Asp Ser Ile Leu Leu Val Thr Gly Gln	
100 105 110	
 gag gtg gag ctg agc aca gtg gct gtg cag gct ggc tcc ctg ctg cac	 384
Glu Val Glu Leu Ser Thr Val Ala Val Gln Ala Gly Ser Leu Leu His	
115 120 125	
 agc ctg gtg ctg cgg gcc caa gag tta gtg ctc cag ttg cat gca ctg	 432
Ser Leu Val Leu Arg Ala Gln Glu Leu Val Leu Gln Leu His Ala Leu	
130 135 140	
 cag ctg gac cgc cag gag ttc gtc tgt ctc aag ttc ctc atc ctc ttc	 480
Gln Leu Asp Arg Gln Glu Phe Val Cys Leu Lys Phe Leu Ile Leu Phe	
145 150 155 160	
 agc ctc gat gtg aaa ttc ctg aac aac cac agc ctc gta aag gac gcc	 528
Ser Leu Asp Val Lys Phe Leu Asn Asn His Ser Leu Val Lys Asp Ala	
165 170 175	
 cag gaa aag gcc aac gct gcc ctg ttg gat tac acc ttg tgt cac tac	 576
Gln Glu Lys Ala Asn Ala Ala Leu Leu Asp Tyr Thr Leu Cys His Tyr	
180 185 190	
 cca cac tgc ggg gac aaa ttc cag cag ttg cta ttg tcg ctg gtg gag	 624
Pro His Cys Gly Asp Lys Phe Gln Gln Leu Leu Leu Ser Leu Val Glu	
195 200 205	
 gtg cgg gcc ctg agc atg cag gcc aag gag tac ctg tac cac aag cat	 672
Val Arg Ala Leu Ser Met Gln Ala Lys Glu Tyr Leu Tyr His Lys His	
210 215 220	
 ttg ggc aac gag atg ccc cgc aac aac ctt ctc att gag atg ctg cag	 720
Leu Gly Asn Glu Met Pro Arg Asn Asn Leu Leu Ile Glu Met Leu Gln	
225 230 235 240	
 gcc aag cag act tga	 735
Ala Lys Gln Thr *	

<210> 17

<211> 244

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic variant

<400> 17

Ser Gly Gly Pro Asn Val Pro Glu Leu Ile Leu Gln Leu Leu Gln Leu
1 5 10 15
Glu Pro Glu Glu Asp Gln Val Arg Ala Arg Ile Val Gly Cys Leu Gln

[illegible]

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<210> 18
<211> 735
<212> DNA
<213> Artificial Sequence
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<220> .
<223> synthetic variant

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<221> CDS
<222> (1) ... (735)
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<400> 18																
tca	gga	ggg	ccc	aat	gta	cca	gag	ctc	ata	ttg	cag	ctg	ctg	caa	cta	48
Ser	Gly	Gly	Pro	Asn	Val	Pro	Glu	Leu	Ile	Leu	Gln	Leu	Leu	Gln	Leu	
1				5					10					15		
gag	cca	gag	gag	gac	cag	gtg	cgc	gct	cgc	atc	gtg	ggc	tgt	ctg	cag	96
Glu	Pro	Glu	Glu	Asp	Gln	Val	Arg	Ala	Arg	Ile	Val	Gly	Cys	Leu	Gln	
			20					25					30			
gag	cca	gcc	aaa	agc	cgc	tct	gac	cag	cca	gcg	ccc	ttc	agc	ctc	ctc	144
Glu	Pro	Ala	Lys	Ser	Arg	Ser	Asp	Gln	Pro	Ala	Pro	Phe	Ser	Leu	Leu	

35	40	45	
tgc aga atg gcc gac cag acc ttt atc tcc att gtc gac tgg gca cga			192
Cys Arg Met Ala Asp Gln Thr Phe Ile Ser Ile Val Asp Trp Ala Arg			
50	55	60	
agg tgc atg gtc ttt aag gag ctg gag gtg gct gac cag atg aca ctg			240
Arg Cys Met Val Phe Lys Glu Leu Glu Val Ala Asp Gln Met Thr Leu			
65	70	75	80
ctg cag aac tgt tgg agc gag ctg ctg gtg ttg gac cac atc tac cgc			288
Leu Gln Asn Cys Trp Ser Glu Leu Leu Val Leu Asp His Ile Tyr Arg			
	85	90	95
cag gtc cag tac ggc aag gaa gac agc atc ctg ctg gtt act gga cag			336
Gln Val Gln Tyr Gly Lys Glu Asp Ser Ile Leu Leu Val Thr Gly Gln			
	100	105	110
gag gtg gag ctg agc aca gtg gct gtg cag gct ggc tcc ctg ctg cac			384
Glu Val Glu Leu Ser Thr Val Ala Val Gln Ala Gly Ser Leu Leu His			
	115	120	125
agc ctg gtg ctg cgg gcc caa gag tta gtg ctc cag ttg cat gca ctg			432
Ser Leu Val Leu Arg Ala Gln Glu Leu Val Leu Gln Leu His Ala Leu			
	130	135	140
cag ctg gac cgc cag gag ttc gtc tgt ctc aag ttc ctc atc ctc ttc			480
Gln Leu Asp Arg Gln Glu Phe Val Cys Leu Lys Phe Leu Ile Leu Phe			
145	150	155	160
agc ctc gat gtg aaa ttc ctg aac aac cac agc ctc gta aag gac gcc			528
Ser Leu Asp Val Lys Phe Leu Asn Asn His Ser Leu Val Lys Asp Ala			
	165	170	175
cag gaa aag gcc aac gct gcc ctg ttg gat tac acc ttg agc cac tac			576
Gln Glu Lys Ala Asn Ala Ala Leu Leu Asp Tyr Thr Leu Ser His Tyr			
	180	185	190
cca cac tcc ggg gac aaa ttc cag cag ttg cta ttg tgc ctg gtg gag			624
Pro His Ser Gly Asp Lys Phe Gln Gln Leu Leu Leu Cys Leu Val Glu			
	195	200	205
gtg cgg gcc ctg agc atg cag gcc aag gag tac ctg tac cac aag cat			672
Val Arg Ala Leu Ser Met Gln Ala Lys Glu Tyr Leu Tyr His Lys His			
	210	215	220
ttg ggc aac gag atg ccc cgc aac aac ctt ctc att gag atg ctg cag			720
Leu Gly Asn Glu Met Pro Arg Asn Asn Leu Leu Ile Glu Met Leu Gln			
225	230	235	240
gcc aag cag act tga			735
Ala Lys Gln Thr *			

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<213> Artificial Sequence

<220>
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<400> 19
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Glu Pro Glu Glu Asp Gln Val Arg Ala Arg Ile Val Gly Cys Leu Gln
20 25 30
Glu Pro Ala Lys Ser Arg Ser Asp Gln Pro Ala Pro Phe Ser Leu Leu
35 40 45
Cys Arg Met Ala Asp Gln Thr Phe Ile Ser Ile Val Asp Trp Ala Arg
50 55 60
Arg Cys Met Val Phe Lys Glu Leu Glu Val Ala Asp Gln Met Thr Leu
65 70 75 80
Leu Gln Asn Cys Trp Ser Glu Leu Leu Val Leu Asp His Ile Tyr Arg
85 90 95
Gln Val Gln Tyr Gly Lys Glu Asp Ser Ile Leu Leu Val Thr Gly Gln
100 105 110
Glu Val Glu Leu Ser Thr Val Ala Val Gln Ala Gly Ser Leu Leu His
115 120 125
Ser Leu Val Leu Arg Ala Gln Glu Leu Val Leu Gln Leu His Ala Leu
130 135 140
Gln Leu Asp Arg Gln Glu Phe Val Cys Leu Lys Phe Leu Ile Leu Phe
145 150 155 160
Ser Leu Asp Val Lys Phe Leu Asn Asn His Ser Leu Val Lys Asp Ala
165 170 175
Gln Glu Lys Ala Asn Ala Ala Leu Leu Asp Tyr Thr Leu Ser His Tyr
180 185 190
Pro His Ser Gly Asp Lys Phe Gln Gln Leu Leu Leu Cys Leu Val Glu
195 200 205
Val Arg Ala Leu Ser Met Gln Ala Lys Glu Tyr Leu Tyr His Lys His
210 215 220
Leu Gly Asn Glu Met Pro Arg Asn Asn Leu Leu Ile Glu Met Leu Gln
225 230 235 240
Ala Lys Gln Thr

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Ser Gly Gly Pro Asn Val Pro Glu Leu Ile Leu Gln Leu Leu Gln Leu	
1 5 10 15	
gag cca gag gag gac cag gtg cgc gct cgc atc gtg ggc tgt ctg cag	96
Glu Pro Glu Glu Asp Gln Val Arg Ala Arg Ile Val Gly Cys Leu Gln	
20 25 30	
gag cca gcc aaa agc cgc tct gac cag cca gcg ccc ttc agc ctc ctc	144
Glu Pro Ala Lys Ser Arg Ser Asp Gln Pro Ala Pro Phe Ser Leu Leu	
35 40 45	
tgc aga atg gcc gac cag acc ttt atc tcc att gtc gac tgg gca cga	192
Cys Arg Met Ala Asp Gln Thr Phe Ile Ser Ile Val Asp Trp Ala Arg	
50 55 60	
agg tgc atg gtc ttt aag gag ctg gag gtg gct gac cag atg aca ctg	240
Arg Cys Met Val Phe Lys Glu Leu Glu Val Ala Asp Gln Met Thr Leu	
65 70 75 80	
ctg caa aac tct tgg agc gag ctg ctg gtg ttg gac cac atc tac cgc	288
Leu Gln Asn Ser Trp Ser Glu Leu Leu Val Leu Asp His Ile Tyr Arg	
85 90 95	
cag gtc cag tac ggc aag gaa gac agc atc ctg ctg gtt act gga cag	336
Gln Val Gln Tyr Gly Lys Glu Asp Ser Ile Leu Leu Val Thr Gly Gln	
100 105 110	
gag gtg gag ctg agc aca gtg gct gtg cag gct ggc tcc ctg ctg cac	384
Glu Val Glu Leu Ser Thr Val Ala Val Gln Ala Gly Ser Leu Leu His	
115 120 125	
agc ctg gtg ctg cgg gcc caa gag tta gtg ctc cag ttg cat gca ctg	432
Ser Leu Val Leu Arg Ala Gln Glu Leu Val Leu Gln Leu His Ala Leu	
130 135 140	
cag ctg gac cgc cag gag ttc gtc tgt ctc aag ttc ctc atc ctc ttc	480
Gln Leu Asp Arg Gln Glu Phe Val Cys Leu Lys Phe Leu Ile Leu Phe	
145 150 155 160	
agc ctc gat gtg aaa ttc ctg aac aac cac agc ctc gta aag gac gcc	528
Ser Leu Asp Val Lys Phe Leu Asn Asn His Ser Leu Val Lys Asp Ala	
165 170 175	
cag gaa aag gcc aac gct gcc ctg ttg gat tac acc ttg agc cac tac	576
Gln Glu Lys Ala Asn Ala Ala Leu Leu Asp Tyr Thr Leu Ser His Tyr	
180 185 190	
cca cac tcc ggg gac aaa ttc cag cag ttg cta ttg tcg ctg gtg gag	624

Pro	His	Ser	Gly	Asp	Lys	Phe	Gln	Gln	Leu	Leu	Leu	Ser	Leu	Val	Glu		
		195					200					205					
gtg	cgg	gcc	ctg	agc	atg	cag	gcc	aag	gag	tac	ctg	tac	cac	aag	cat	672	
Val	Arg	Ala	Leu	Ser	Met	Gln	Ala	Lys	Glu	Tyr	Leu	Tyr	His	Lys	His		
	210					215					220						
ttg	ggc	aac	gag	atg	ccc	cgc	aac	aac	ctt	ctc	att	gag	atg	ctg	cag	720	
Leu	Gly	Asn	Glu	Met	Pro	Arg	Asn	Asn	Leu	Leu	Ile	Glu	Met	Leu	Gln		
225					230					235					240		
gcc	aag	cag	act	tga												735	
Ala	Lys	Gln	Thr	*													

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<400> 21

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Glu	Pro	Glu	Glu	Asp	Gln	Val	Arg	Ala	Arg	Ile	Val	Gly	Cys	Leu	Gln		
			20					25					30				
Glu	Pro	Ala	Lys	Ser	Arg	Ser	Asp	Gln	Pro	Ala	Pro	Phe	Ser	Leu	Leu		
		35					40					45					
Cys	Arg	Met	Ala	Asp	Gln	Thr	Phe	Ile	Ser	Ile	Val	Asp	Trp	Ala	Arg		
50						55					60						
Arg	Cys	Met	Val	Phe	Lys	Glu	Leu	Glu	Val	Ala	Asp	Gln	Met	Thr	Leu		
65					70					75					80		
Leu	Gln	Asn	Ser	Trp	Ser	Glu	Leu	Leu	Val	Leu	Asp	His	Ile	Tyr	Arg		
			85					90						95			
Gln	Val	Gln	Tyr	Gly	Lys	Glu	Asp	Ser	Ile	Leu	Leu	Val	Thr	Gly	Gln		
			100					105					110				
Glu	Val	Glu	Leu	Ser	Thr	Val	Ala	Val	Gln	Ala	Gly	Ser	Leu	Leu	His		
		115					120					125					
Ser	Leu	Val	Leu	Arg	Ala	Gln	Glu	Leu	Val	Leu	Gln	Leu	His	Ala	Leu		
		130				135					140						
Gln	Leu	Asp	Arg	Gln	Glu	Phe	Val	Cys	Leu	Lys	Phe	Leu	Ile	Leu	Phe		
145				150					155						160		
Ser	Leu	Asp	Val	Lys	Phe	Leu	Asn	Asn	His	Ser	Leu	Val	Lys	Asp	Ala		
			165					170						175			
Gln	Glu	Lys	Ala	Asn	Ala	Ala	Leu	Leu	Asp	Tyr	Thr	Leu	Ser	His	Tyr		
		180					185						190				
Pro	His	Ser	Gly	Asp	Lys	Phe	Gln	Gln	Leu	Leu	Leu	Ser	Leu	Val	Glu		
		195					200					205					
Val	Arg	Ala	Leu	Ser	Met	Gln	Ala	Lys	Glu	Tyr	Leu	Tyr	His	Lys	His		
	210					215					220						

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<400> 22
Glu Asn Leu Tyr Phe Xaa Thr Cys Ser
1 5

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<400> 23
Leu Leu Ile Glu Met Leu
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<400> 24
Asp Tyr Lys Asp Asp Asp Asp Lys
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<400> 25

Tyr Pro Tyr Asp Val Pro Asp Tyr Ala

1 5

<210> 26

<211> 10

<212> PRT

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<400> 26

Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu

1 5 10

<210> 27

<211> 6

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<213> Artificial Sequence

<220>

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<400> 27

Asp Thr Tyr Arg Tyr Ile

1 5

<210> 28

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic construct

<400> 28

tcggccattc gcgagaggag gctg

24

<210> 29

<211> 26

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<400> 29
ctcgctccaa gagttttgca gcagtg 26

<210> 30
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cacctccacc agcgacaata gcaac 25

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aggagtcttc tcgaggcagt ggca 24